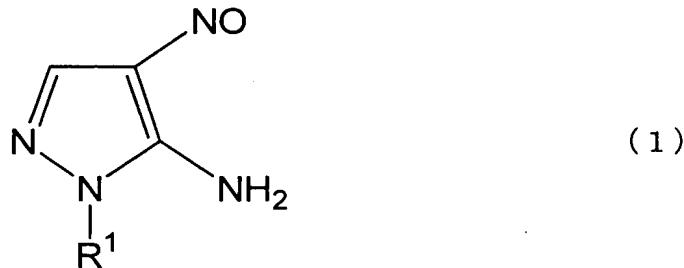


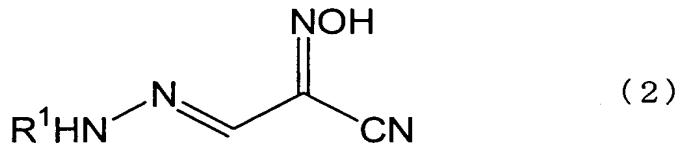
Claims:

1. A process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole compound represented by the formula (1):



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wherein R¹ represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group each of which may have a substituent(s), which comprises cyclizing a 3-hydrazono-2-hydroxyimino-propionitrile compound represented by the formula (2):



wherein R¹ has the same meaning as defined above.

2. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 1, wherein R¹ is an alkyl group having 1 to 4 carbon atoms substituted by a hydroxyl group.

15 3. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 1, wherein R¹ is a hydroxyethyl group.

20 4. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to any one of Claims 1 to 3, wherein the cyclization reaction is carried out in a solvent.

25 5. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 4, wherein the solvent is at least one selected from the group consisting of water; mineral acids; alcohols; nitriles; aliphatic hydrocarbons; halogenated aliphatic hydrocarbons; aromatic

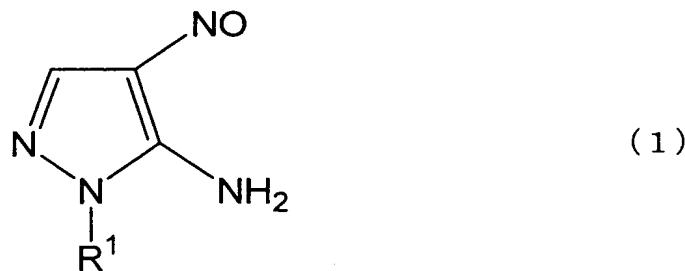
hydrocarbons; halogenated aromatic hydrocarbons; ethers; carboxylic acids; amides; sulfoxides; and carboxylic acid esters.

6. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 4, wherein the solvent is at least one selected from the group consisting of water; hydrochloric acid, sulfuric acid; methanol, ethanol, n-propyl alcohol, isopropyl alcohol, n-butyl alcohol, isobutyl alcohol, sec-butyl alcohol, t-butyl alcohol; 10 acetonitrile, propionitrile; hexane, heptane; methylene chloride, chloroform, carbon tetrachloride; benzene, toluene; chlorobenzene; diethyl ether, diisopropyl ether, tetrahydrofuran, dioxane; acetic acid, propionic acid; N,N-dimethylformamide, N,N-dimethylacetamide; dimethylsulf-15 oxide; ethyl acetate, butyl acetate and ethyl propionate.

7. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to any one of Claims 4 to 6, wherein the solvent is used in an amount of 0.5 to 100 g based on 1 g of the 3-hydrazono-2-hydroxyiminopropionitrile 20 compound.

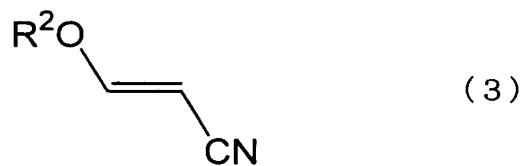
8. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 1, wherein the reaction is carried out by mixing the 3-hydrazono-2-hydroxyimino-propionitrile compound and a solvent at a reaction temperature of -20 to 200°C under stirring.

9. A process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole compound represented by the formula (1):



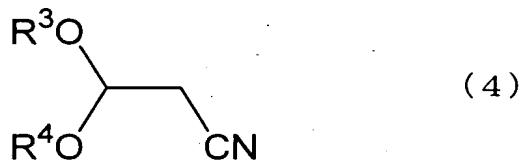
wherein R¹ represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group each of which may have a substituent(s),

which comprises reacting a nitrosating agent with at least one nitrile compound selected from the group consisting of a 3-alkoxyacrylonitrile represented by the formula (3):



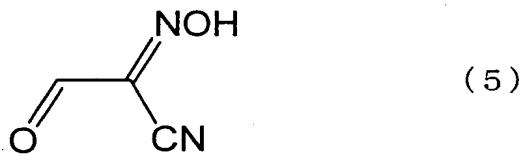
5 wherein R^2 represents an alkyl group having 1 to 4 carbon atoms,

and a 3,3-dialkoxypropionitrile represented by the formula (4):



10 wherein R^3 and R^4 may be the same or different from each other and each represent an alkyl group having 1 to 4 carbon atoms,

in the presence of water to obtain 2-hydroxyimino-3-oxo-propionitrile represented by the formula (5):



15

and then, reacting a hydrazine compound represented by the formula (6):



wherein R^1 has the same meaning as defined above.

20 10. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 9, wherein R^1 is an alkyl group having 1 to 4 carbon atoms substituted by a hydroxyl group.

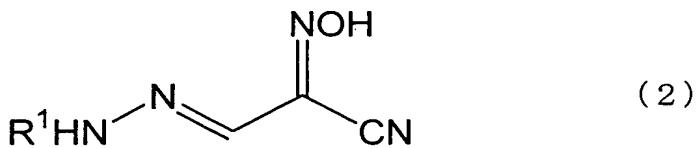
11. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 9 or 10, wherein a cyclization reaction is carried out in a solvent.

25 12. The process for preparing a 3-unsubstituted-5-amino-4-

nitrosopyrazole according to any one of Claims 9 to 11, wherein the nitrosating agent is at least one compound selected from the group consisting of nitrous acid; nitrosyl halides; nitrosyl carboxylates; and nitrosyl sulfate.

13. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to any one of Claims 9 to 11, wherein the nitrosating agent is at least one compound selected from the group consisting of nitrous acid; 10 nitrosyl fluoride, nitrosyl chloride, nitrosyl bromide, nitrosyl iodide; nitrosyl formate, nitrosyl acetate; and nitrosyl sulfate.

14. A 3-hydrazono-2-hydroxyiminopropionitrile compound represented by the formula (2):

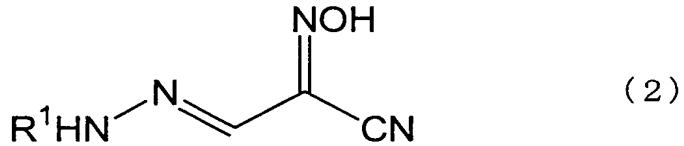


wherein R^1 represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group each of which may have a substituent(s).

15. The 3-hydrazono-2-hydroxyiminopropionitrile compound according to Claim 14, wherein R^1 is an alkyl group having 20 1 to 4 carbon atoms substituted by a hydroxyl group.

16. The 3-hydrazono-2-hydroxyiminopropionitrile compound according to Claim 14, wherein R^1 is a hydroxyethyl group.

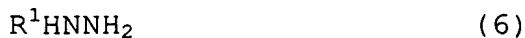
17. A process for preparing a 3-hydrazono-2-hydroxyimino-25 propionitrile compound represented by the formula (2):



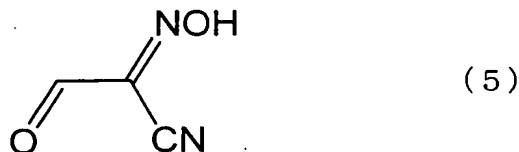
wherein R^1 represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group each of which may have a substituent(s),

30 which comprises reacting a hydrazine compound represented

by the formula (6):

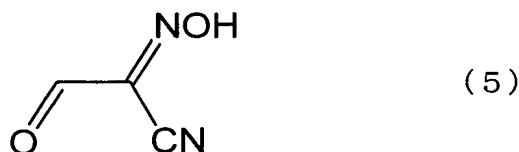


wherein R^1 has the same meaning as defined above, with 2-hydroxyimino-3-oxopropionitrile represented by the 5 formula (5):

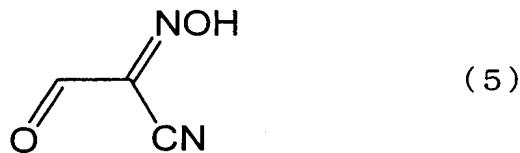


18. The process for preparing a 3-hydrazono-2-hydroxy-iminopropionitrile compound according to Claim 17; wherein R^1 is an alkyl group having 1 to 4 carbon atoms substituted 10 by a hydroxyl group.

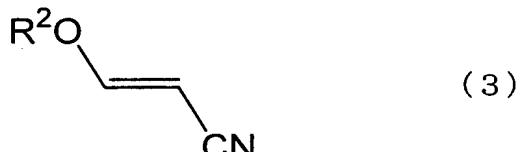
19. 2-Hydroxyimino-3-oxopropionitrile represented by the formula (5):



20. A process for preparing 2-hydroxyimino-3-oxopropio-15 nitrile represented by the formula (5):



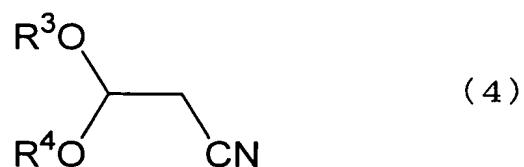
which comprises reacting a nitrosating agent with at least one nitrile compound selected from the group consisting of a 3-alkoxyacrylonitrile represented by the formula (3):



20

wherein R^2 represents an alkyl group having 1 to 4 carbon atoms,

and a 3,3-dialkoxypropionitrile represented by the formula (4):



wherein R^3 and R^4 may be the same or different from each other and each represent an alkyl group having 1 to 4 carbon atoms,

5 in the presence of water.